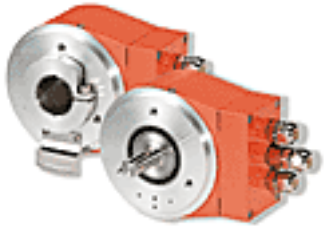

Application Note

Configuration of S7-300 with CPU315-2 DP

and a Multiturn Encoder 9080/5860

as a PROFIBUS-DP Master

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1 Introduction

This manual describes the configuration of an S7-300 PLC with CPU 315-2 DP for PROFIBUS-DP Master to connect to a Kübler PROFIBUS-DP Slave. The example describes the configuration for four bytes input and four bytes output.

2 Hints and Validity

- This manual describes the S7-300 as Master on PROFIBUS-DP
- STEP7 Version 3.1 under Windows 95 > (already installed)
- This manual describes the configuration for a data exchange only. The PLC programer is responsible for the error handling. This is not part of this manual.

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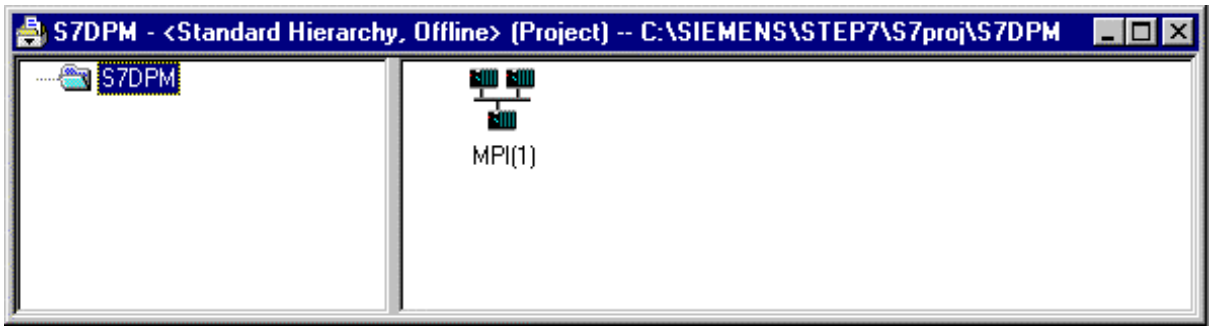
3 Steps

3.1 Project

The first step is to create a project. To create a project select menu **File - New - Project**. Enter the name for the project, e.g. S7DPM

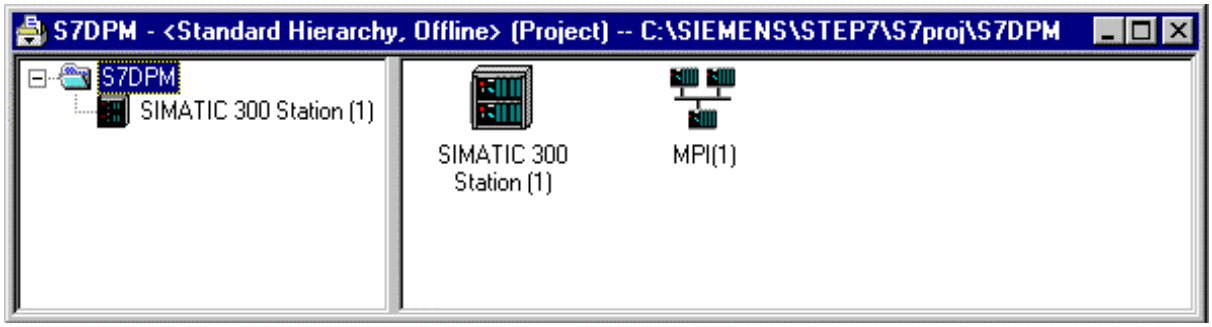


3.2 Stations

This manual describes the configuration for a PRODIBUS-DP master a S7-300 and a Kübler PROFIBUS-DP slave. The next steps are to insert these two stations.

3.2.1 S7-300 Station

To insert the S7-300 station select menu **Insert - Station - SIMATIC 300 Station**.



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3.2.2 Kübler Multiturn Encoder PROFIBUS-DP Slave

Later you will need the GSD file for the Kübler PROFIBUS-DP slave device. The following table shows the device and its corresponding GSD file name.

Device	GSD file name	Slave type
Multiturn Encoder 9080	KUEB9080.GSD	Modular slave
Multiturn Encoder 5860	KUEB06AE.GSD	Modular slave

These files are on the Kübler CD-ROM named ProfibusDP Software or on the homepage of the PNO at www.profibus.com or on www.kuebler.com

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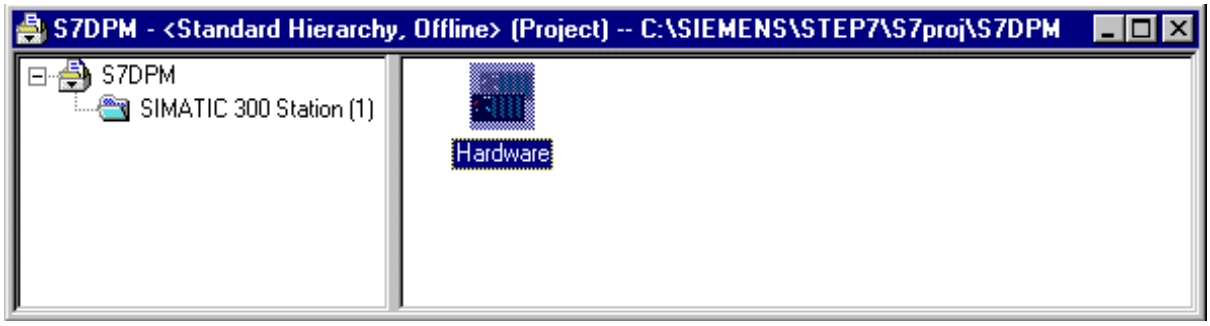
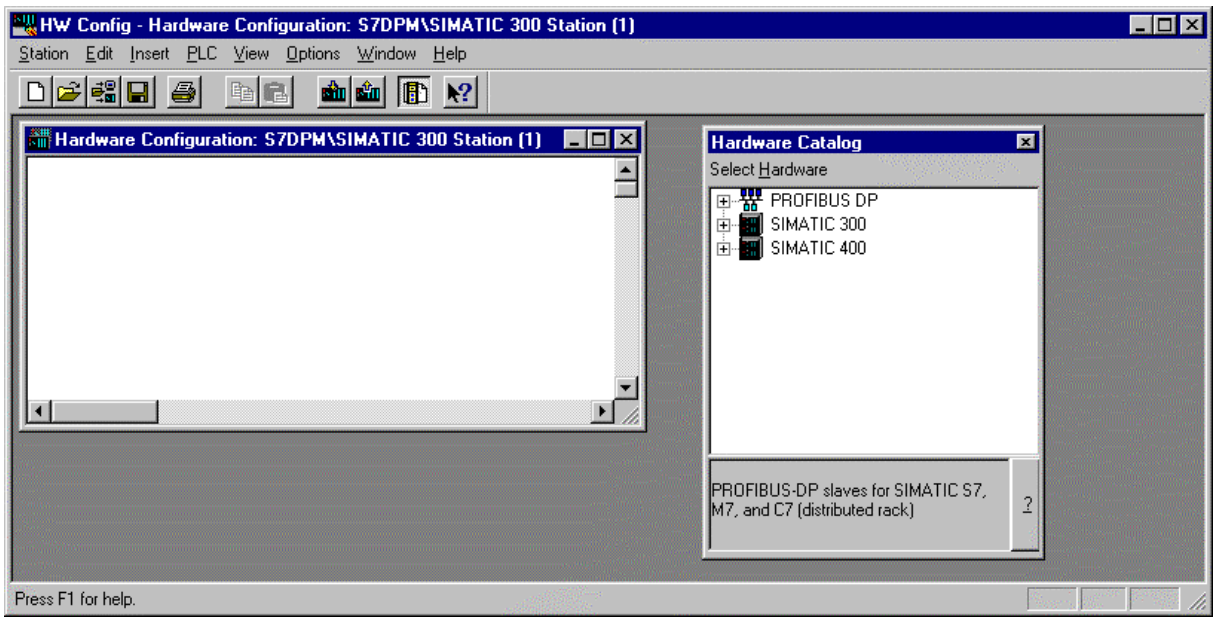
3.3 Hardware Configuration S7 300 Station

Open the software for hardware configuration of the S7 station.



Select the icon Hardware. Then select the menu **Edit - Open Object** or double click the Hardware icon to start the Hardware Configurator.

Select the menu **View - Catalog**.



Select now step by step the hardware components of the S7 300 station.

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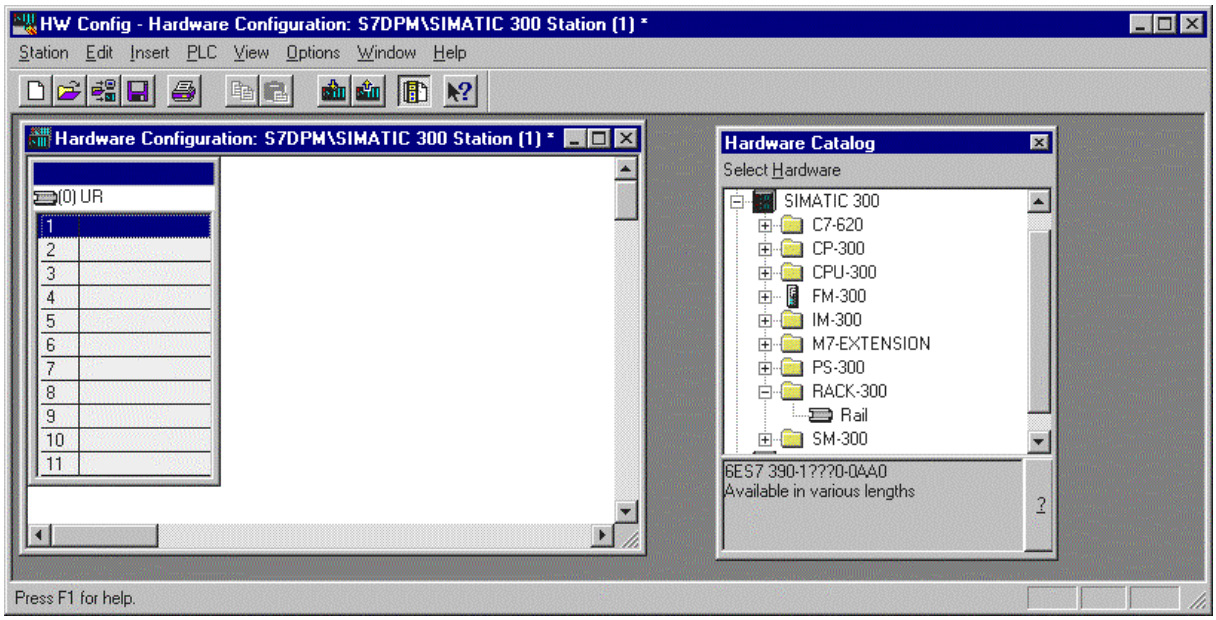
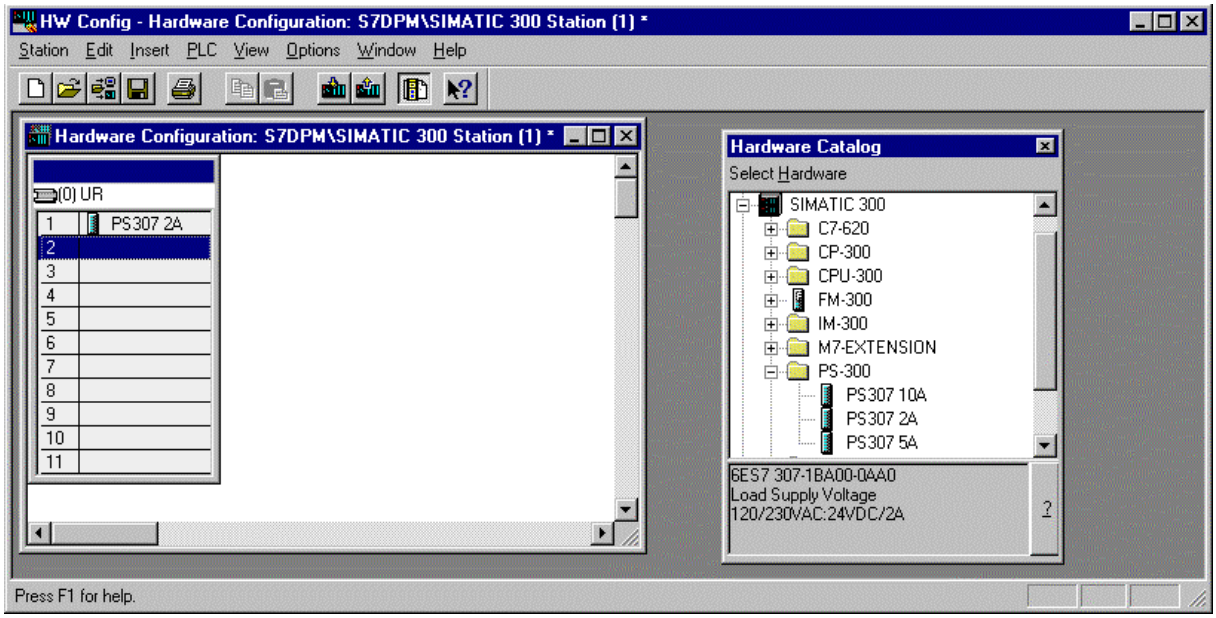
3.3.1 The Rail



3.3.2 The Power Supply



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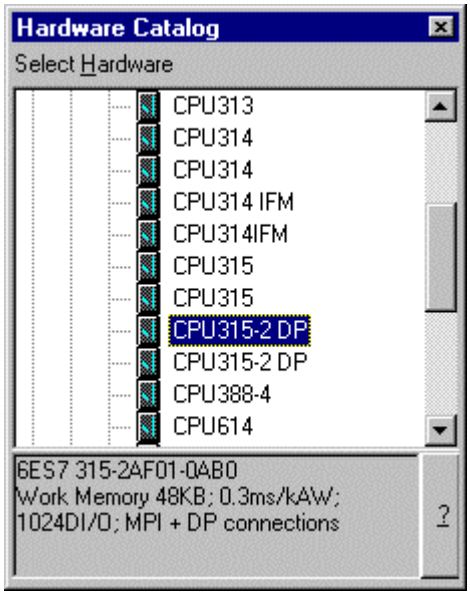
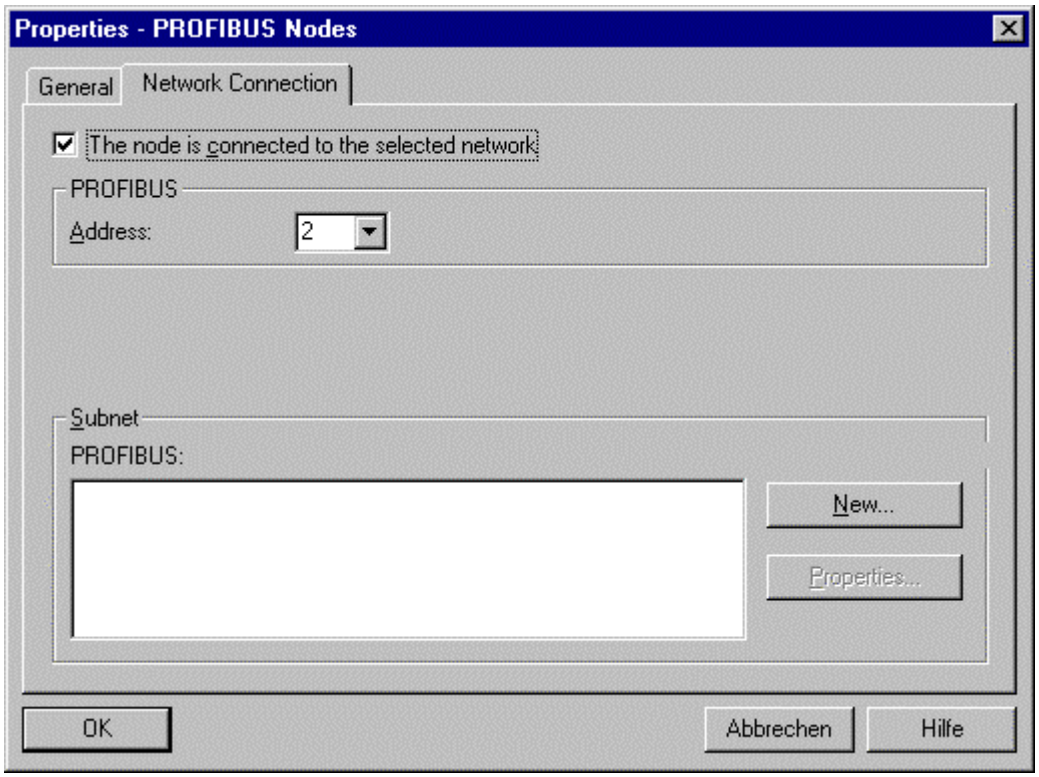
3.3.3 The CPU

Select for example CPU 315-2DP.



Because this CPU type is usable for PROFIBUS-DP the following window appears. Set *the node is connected to the selected network* to active.



Set the PROFIBUS address, e.g address 2.

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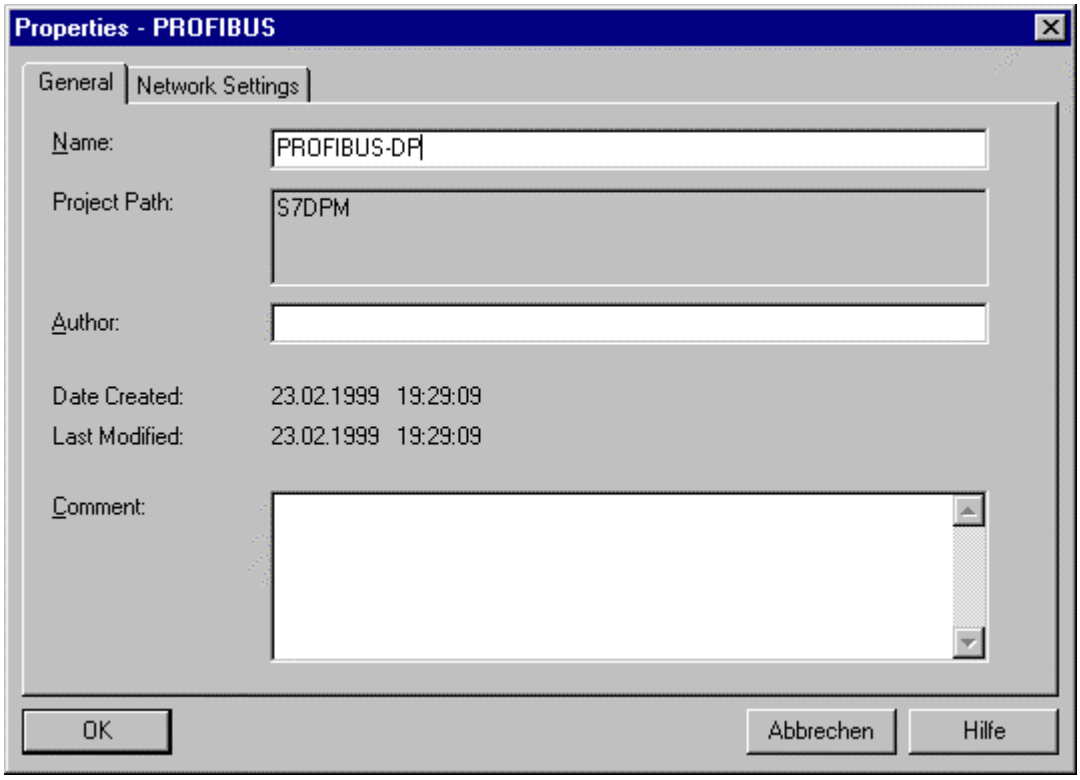
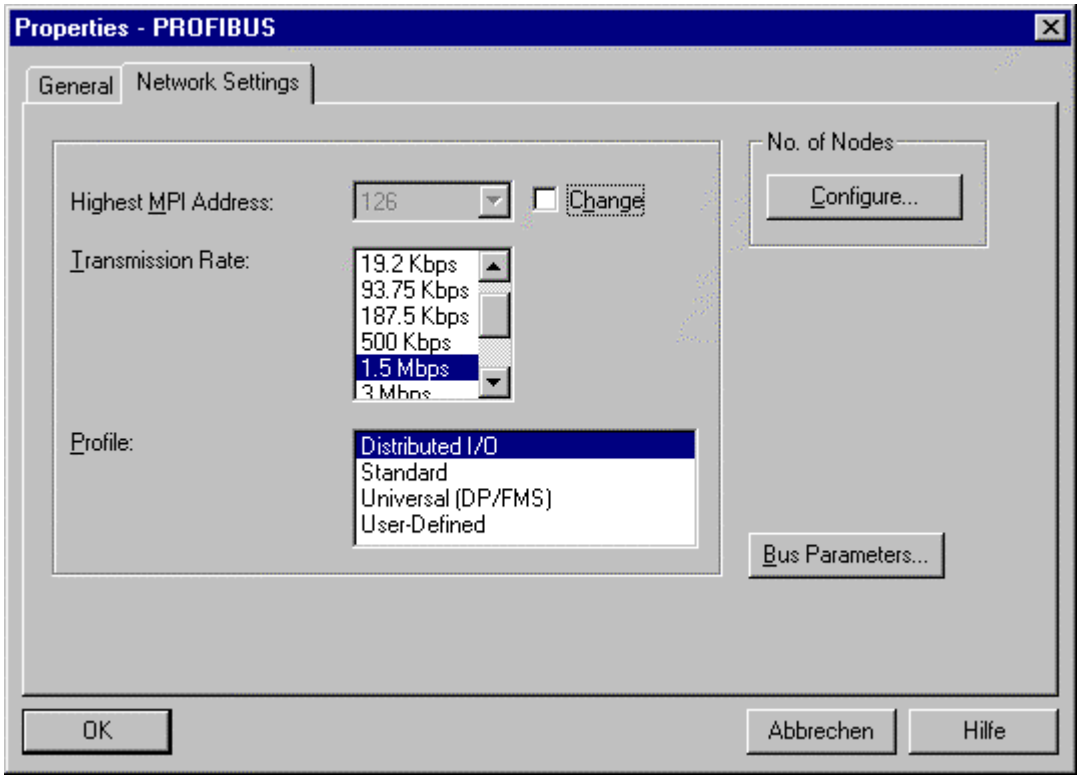
Create a subnet by pressing the button New.



Select Network Settings to open the following window.



Select the transmission rate, e.g. 1.5 Mbps.

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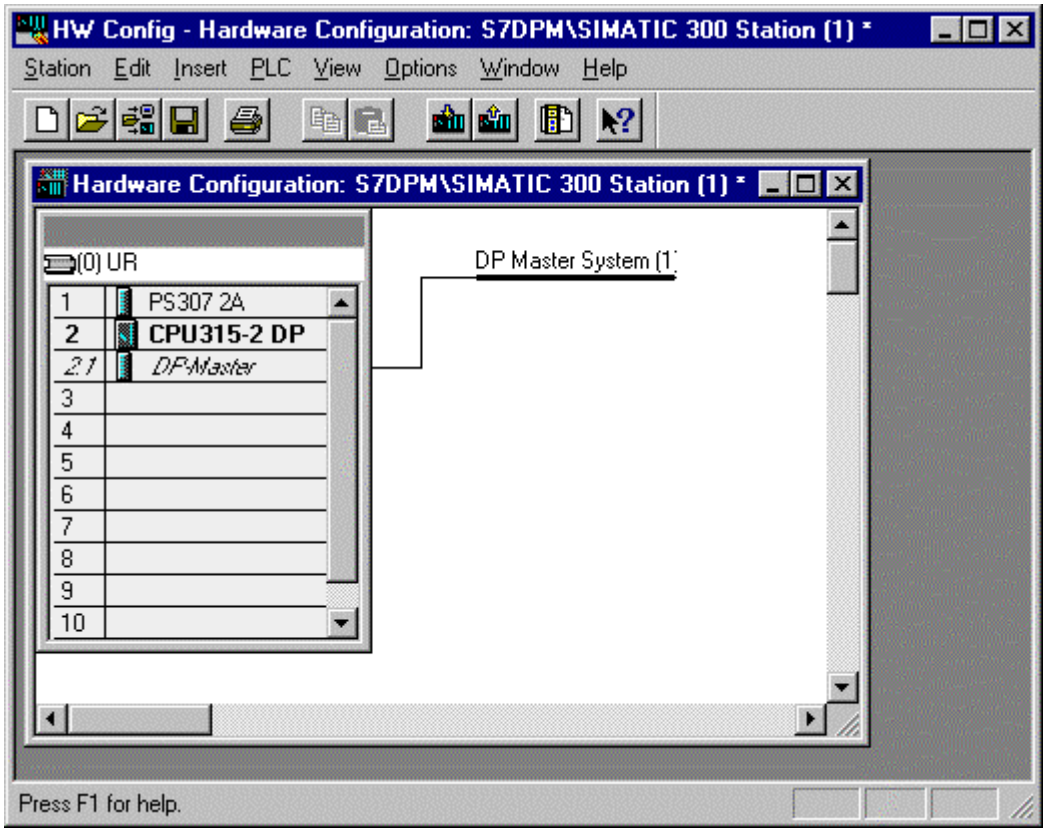
Select the Profile, e.g. the Distributed I/O profile.

Press several times OK to reach the following window.



Save the current setting by selecting the menu **Station - Save**.

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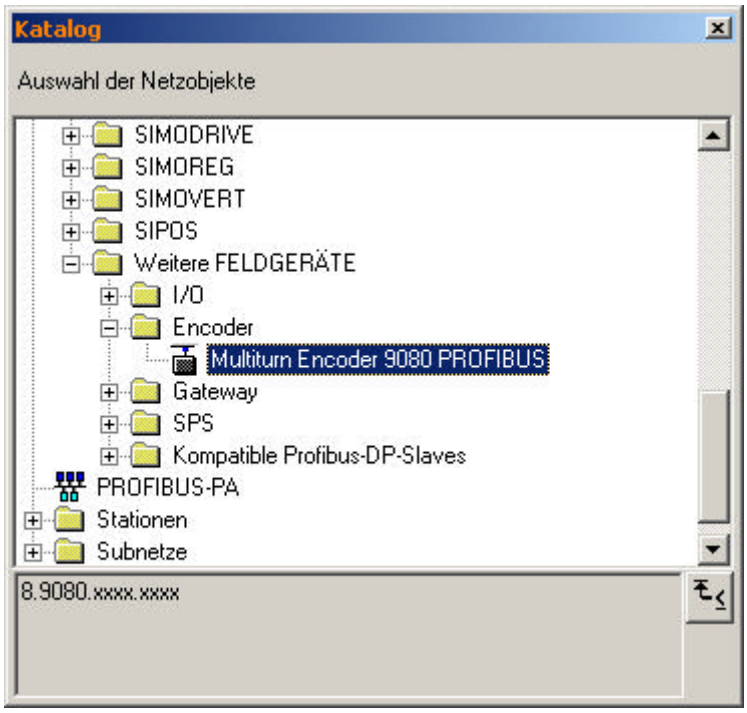
3.3.4 Add GSD

Open the Explorer and copy the GSD file KUEB9080.GSD or KUEB06AE.GSD into the directory of C:\Siemens\Step7\S7data\GSD.

Then select the menu **Options - Update DDB Files**.

In the hardware catalogue you will find the Kübler PRODIBUS-DP slave now under section **Additional Field Devices**.



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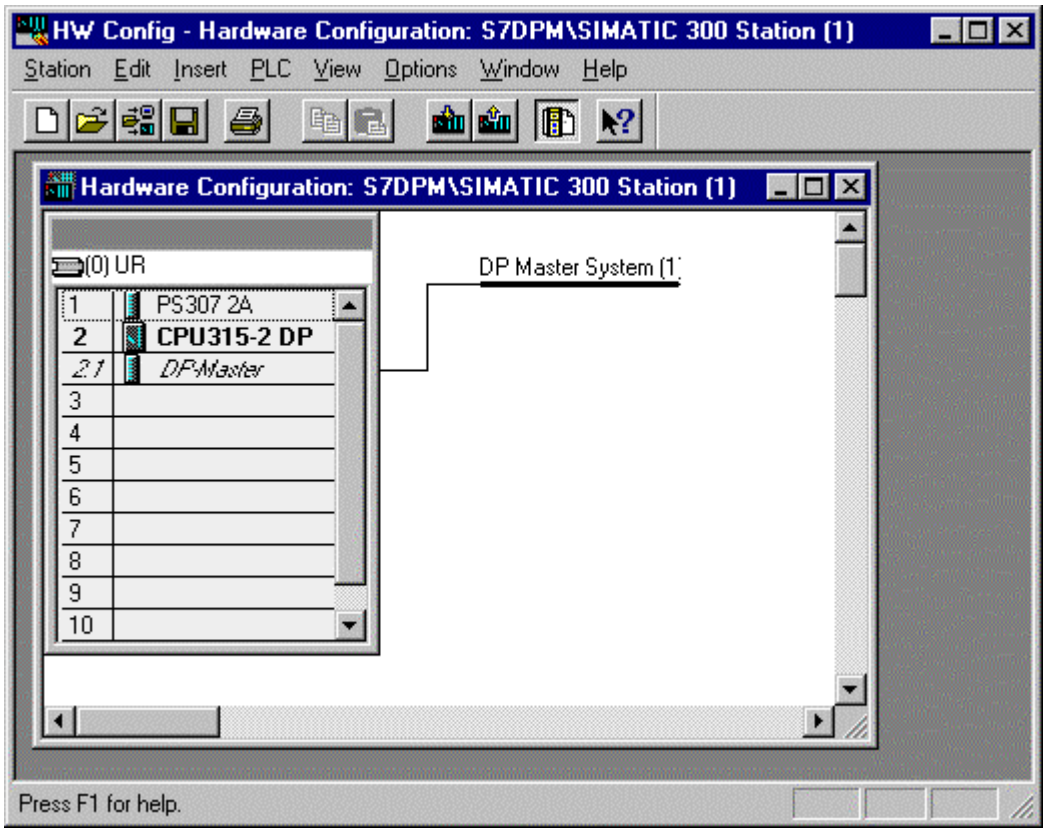
3.3.5 Insert PROFIBUS-DP Slave Device

Now select the line of **DP Master System (1)** by a click with the left mouse button on it! The line will become a **solid** line.



Select the folder of

- Kübler Multiturn Encoder 9080
- Kübler Multiturn Encoder 5860

and drop it on the solid **DP Master System (1)** line.

A window is opened to set the station address of this slave.

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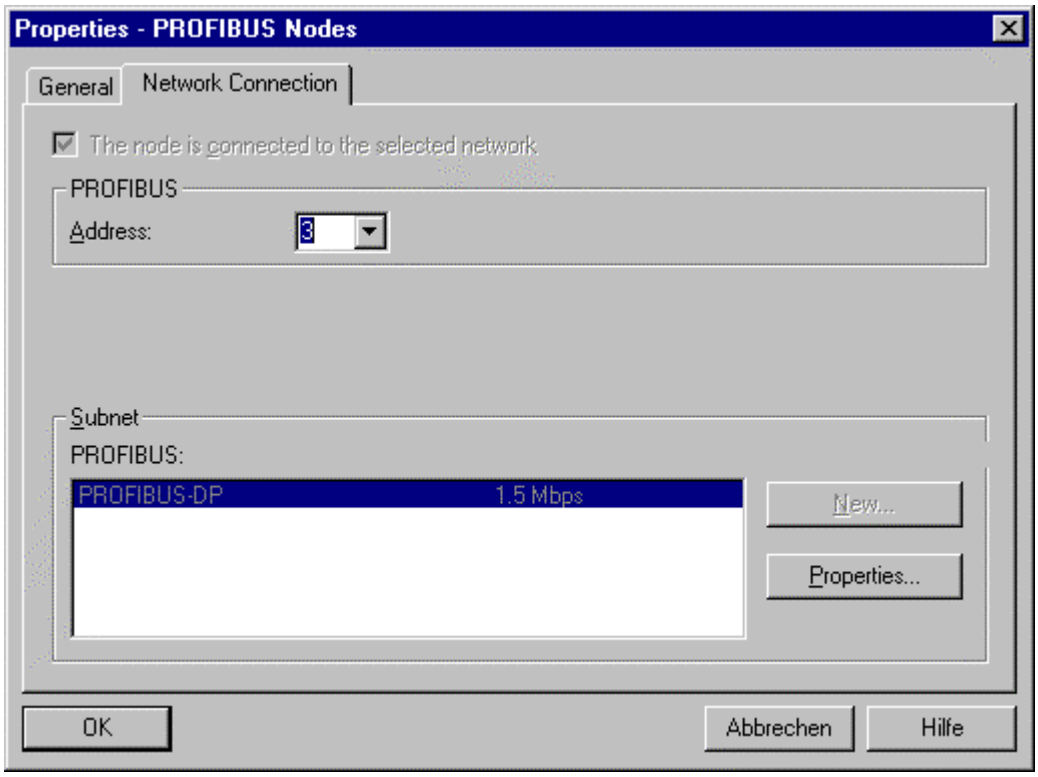
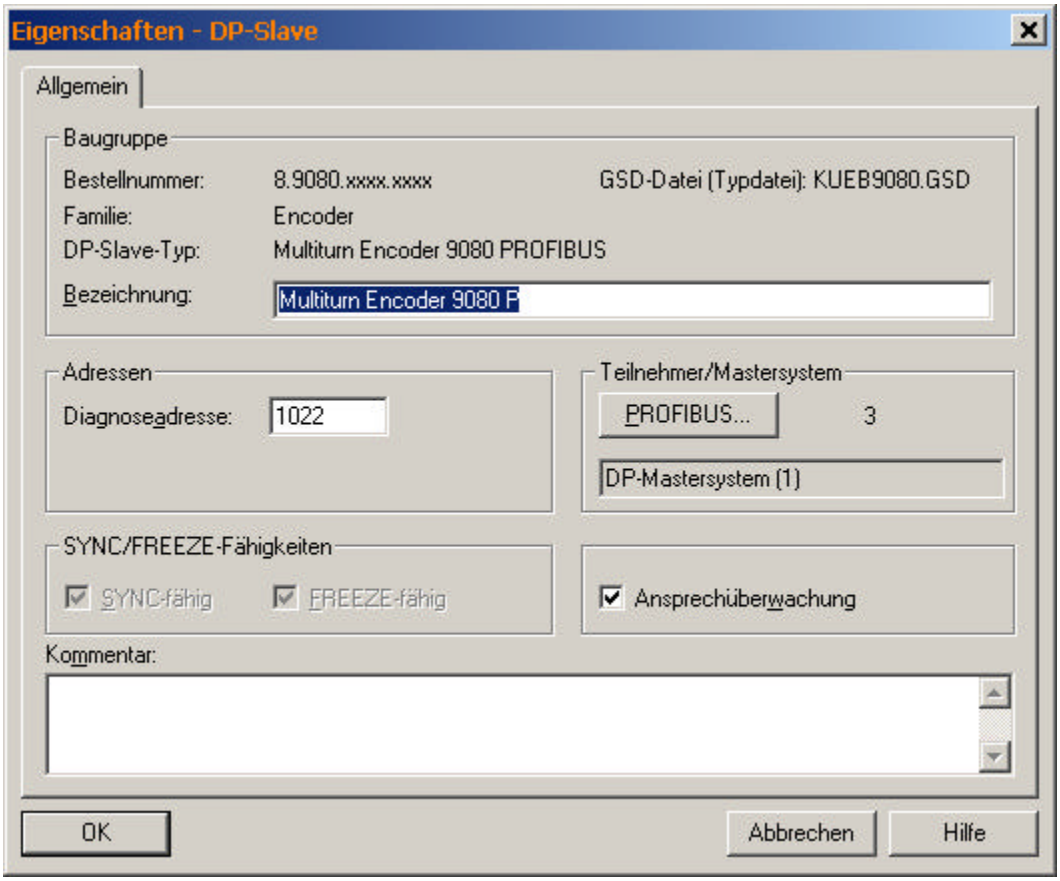


Press OK to open the following window.



Press the OK button.

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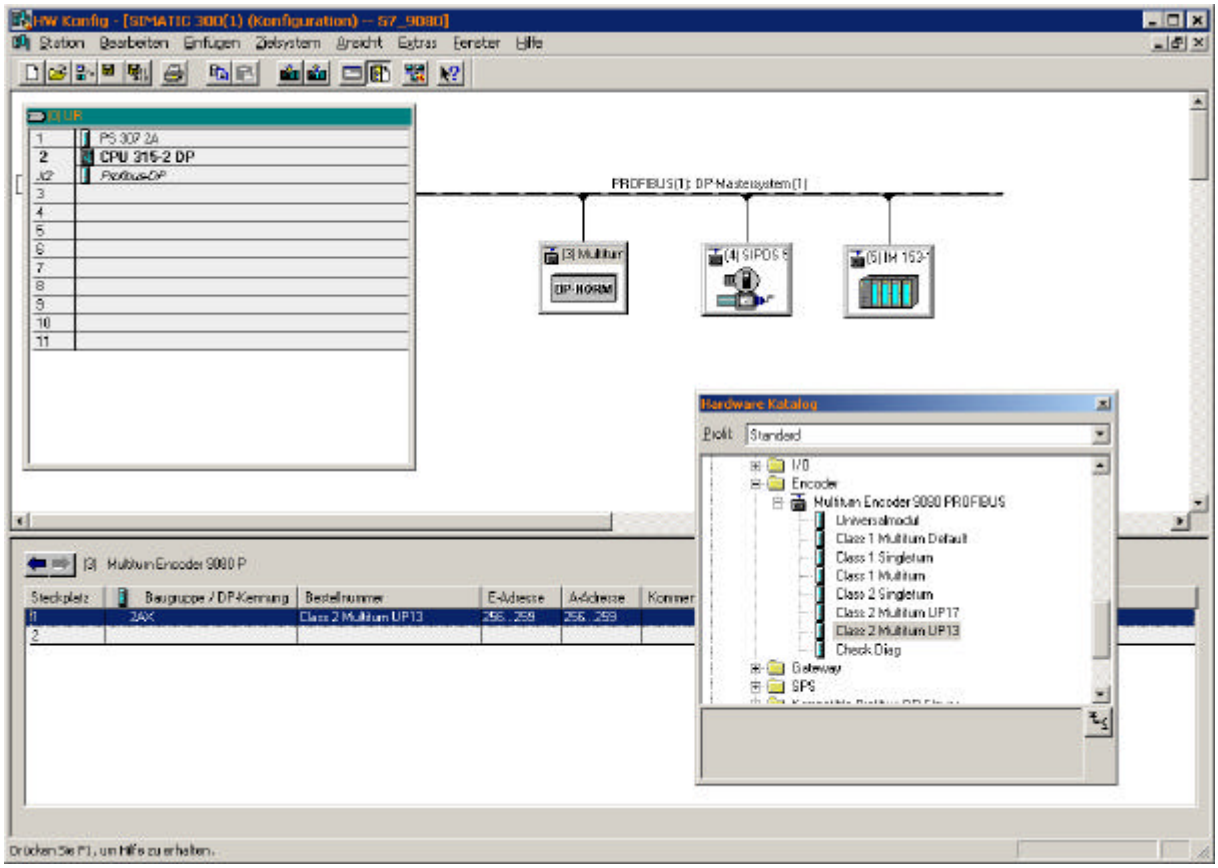
The PROFIBUS-DP slave appears on the DP master system.



3.3.6 Assigning addresses of input and output

Open the folder of the device in the hardware catalogue.

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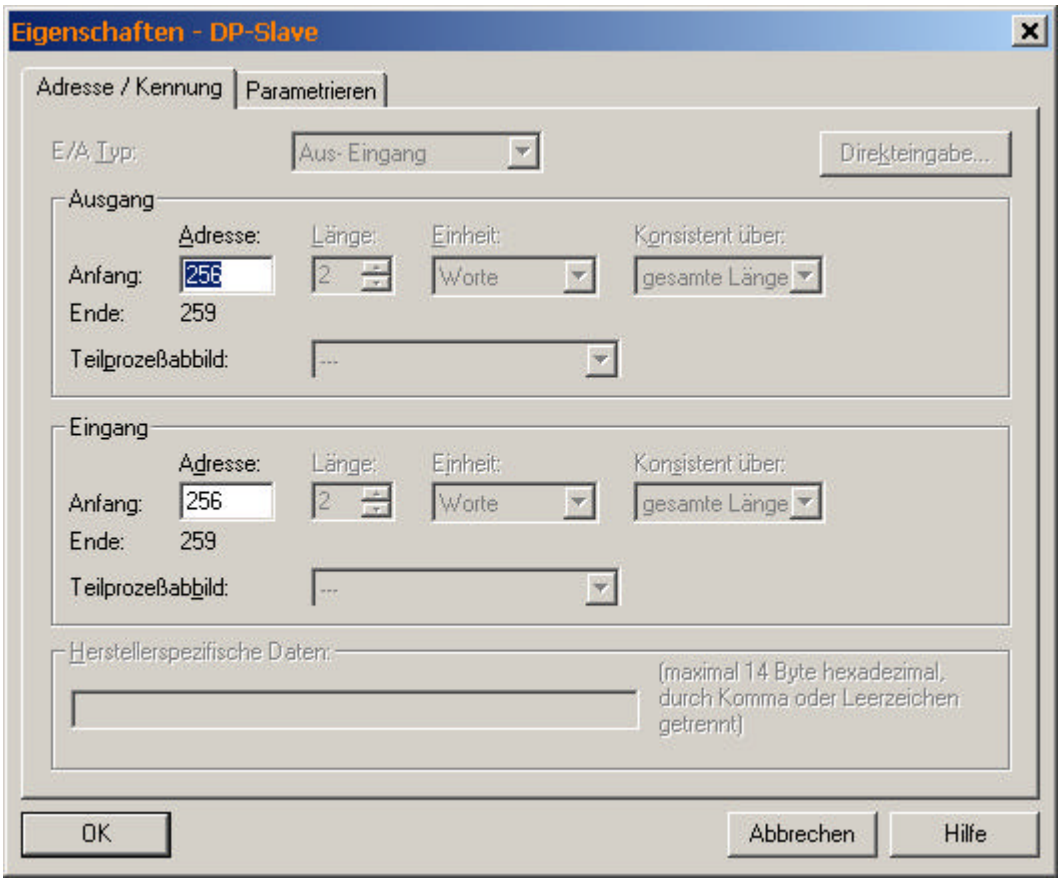
Select first the module **4 byte input (256).** The following windows appears.



Set the start address of the 4 byte input and press OK.

This address is very important for the PLC program.

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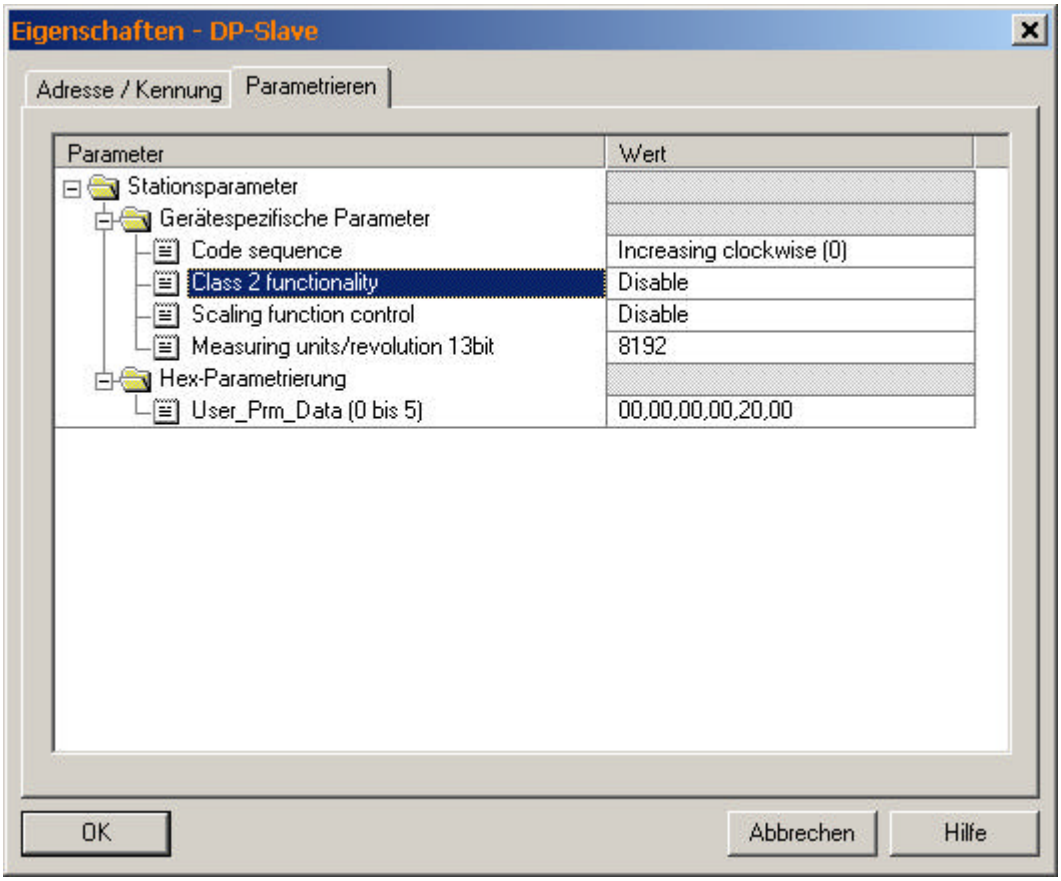
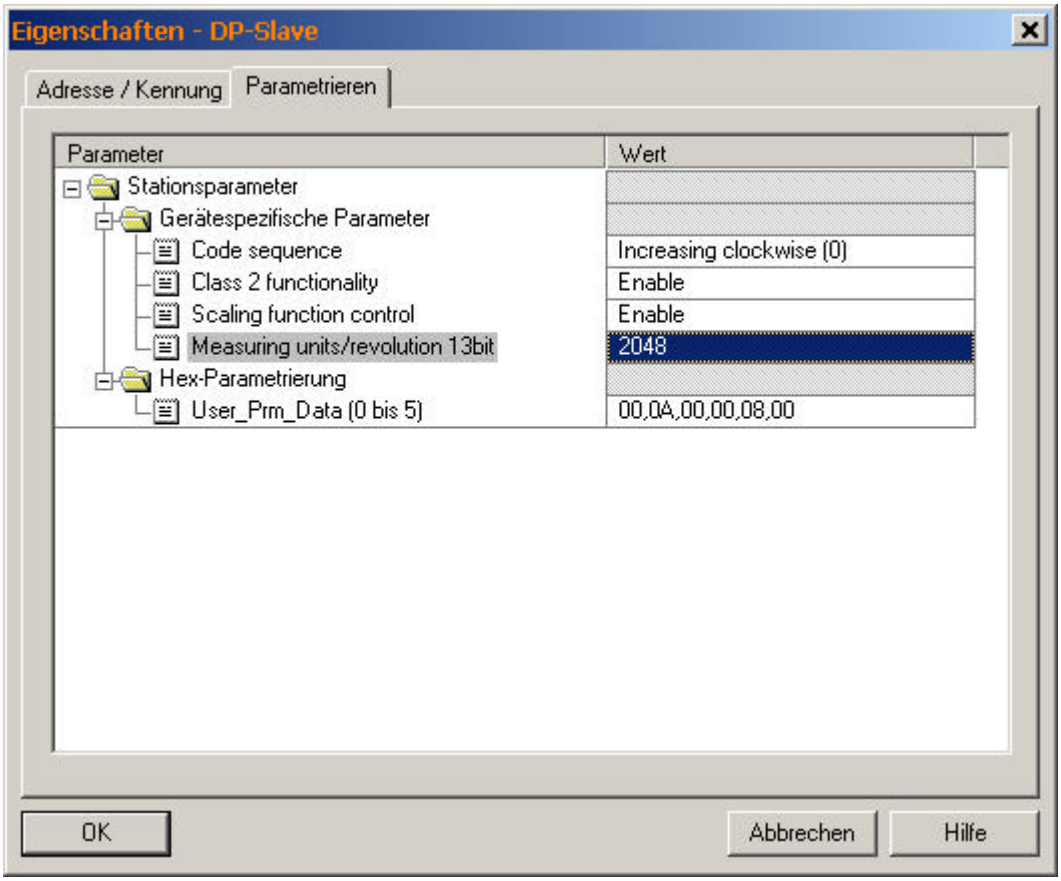
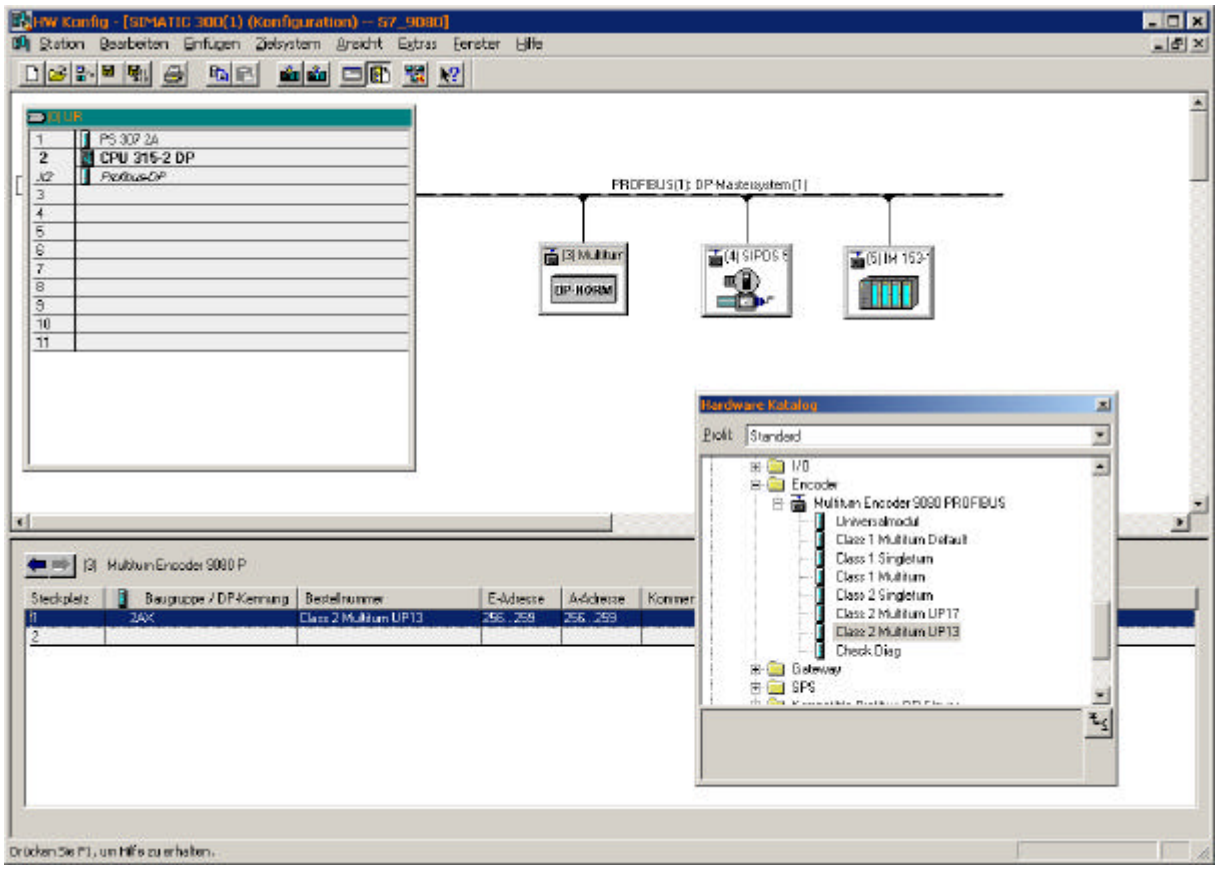
Select first the module **and then change the parameter e.g. scaling**





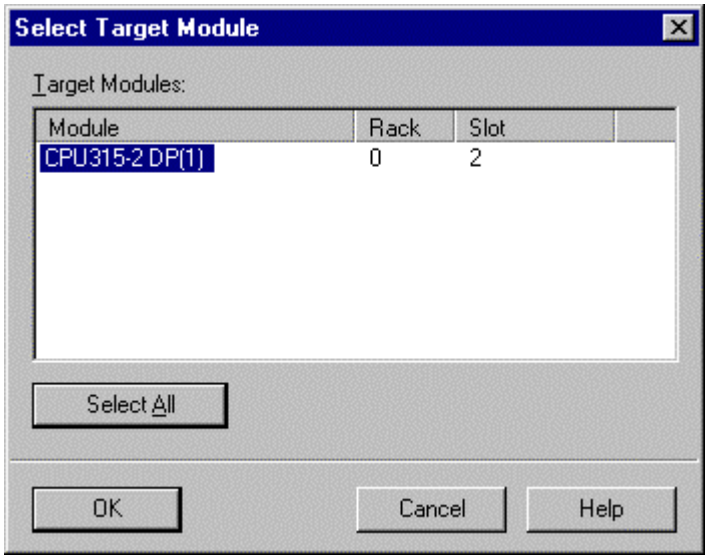
Copyright© Kübler GmbH



That module result in the value 256 ... 259.

3.3.7 Download the hardware configuration

Select the menu **PLC - Download**.



Select All and press OK.

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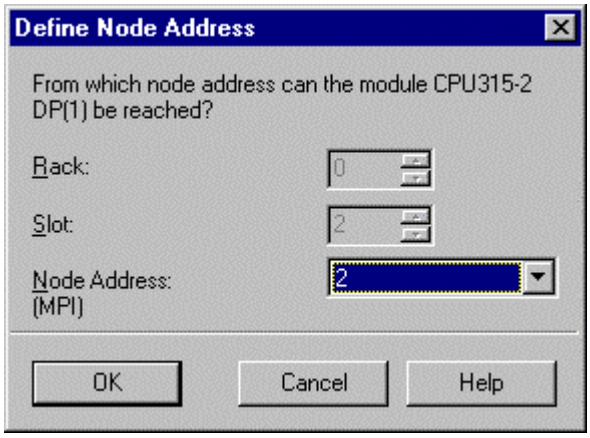

Press OK. The Download Window shows Module currently beeing processed [0/0/2/0] CPU 315-2DP(1)

3.3.8 Save and Exit the Hardware Configurator

Select menu **Station - Save** and the select the menu **Station - Exit**.

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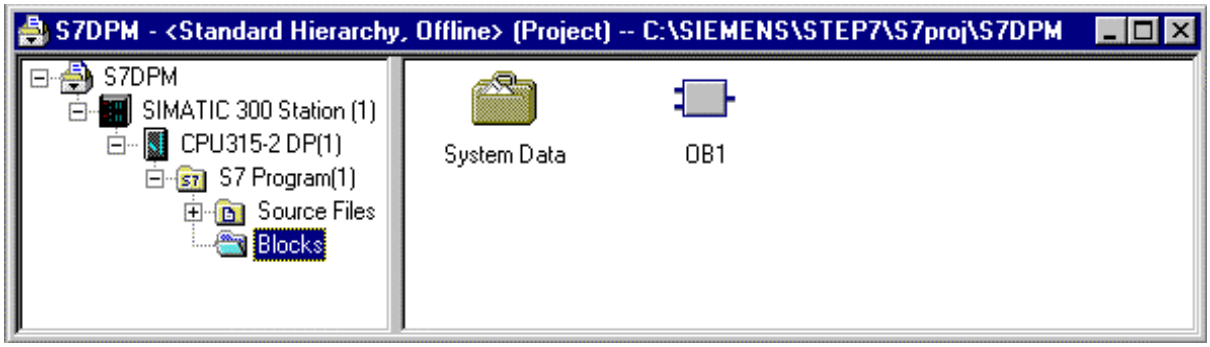
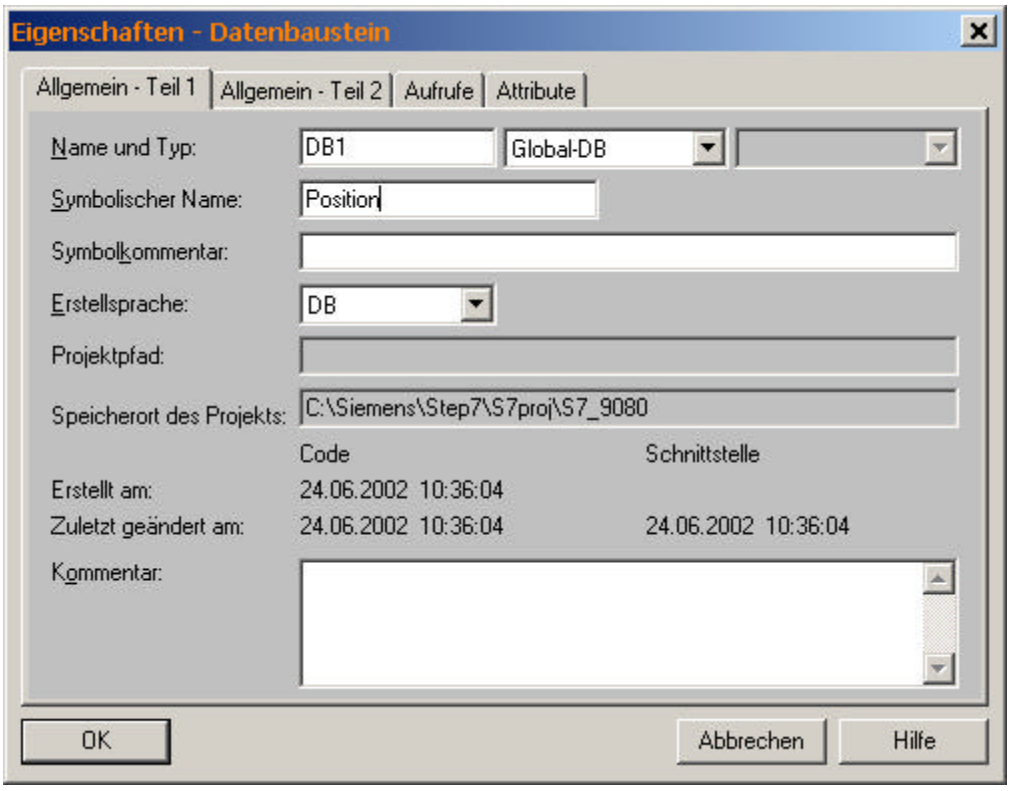
3.4 Data Blocks

The data block contains the values that are read and write over the PROFIBUS. First the data blocks have to be created.



Select **Insert -S7 Block - Data Block**. Enter the number of the data block, e.g. DB1.



Press OK.

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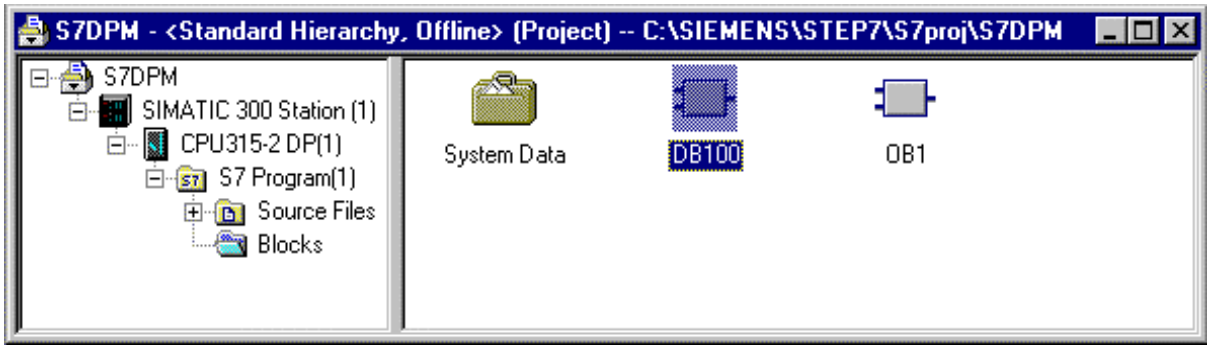
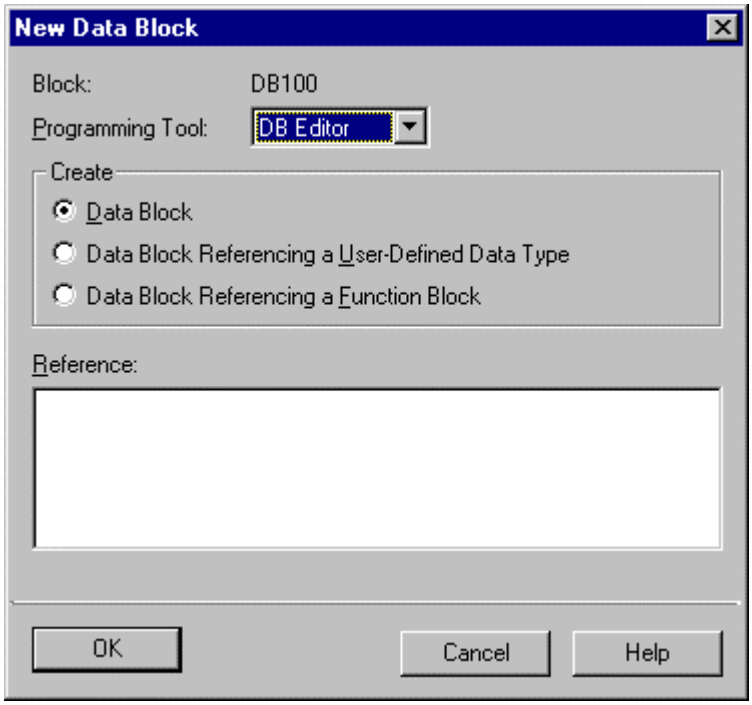
Now the dat block appears in the block container.



Select DB1 and then select the menu **Edit - Open Object** or double click the icon of DB1.

The software LAD/STL/FBD starts.



Press OK.

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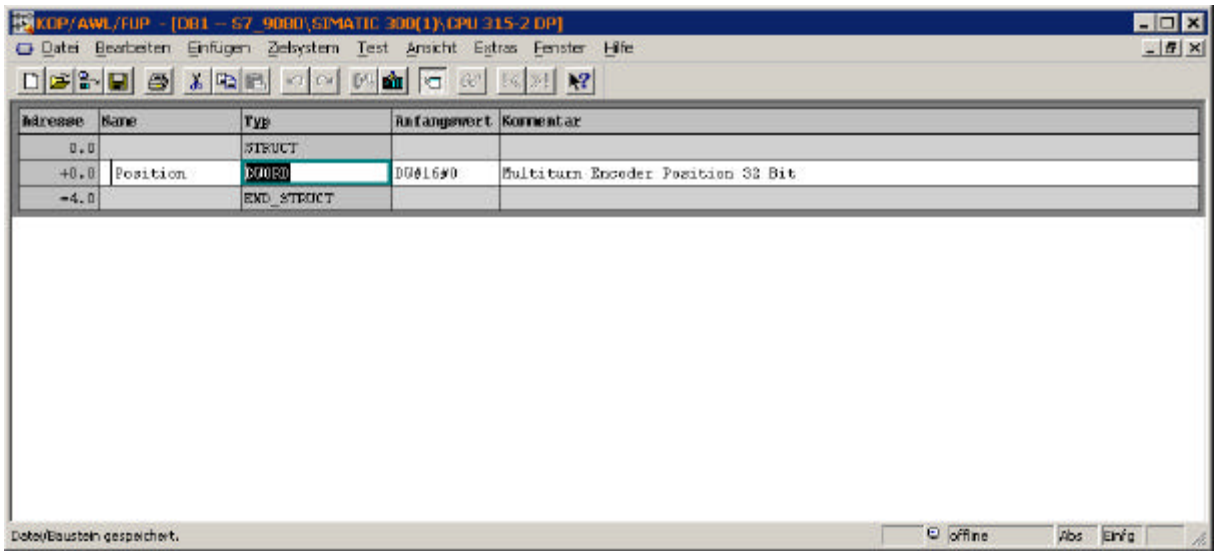

Enter name, type and initial value of DB1.

Select the menu **File - Save**.

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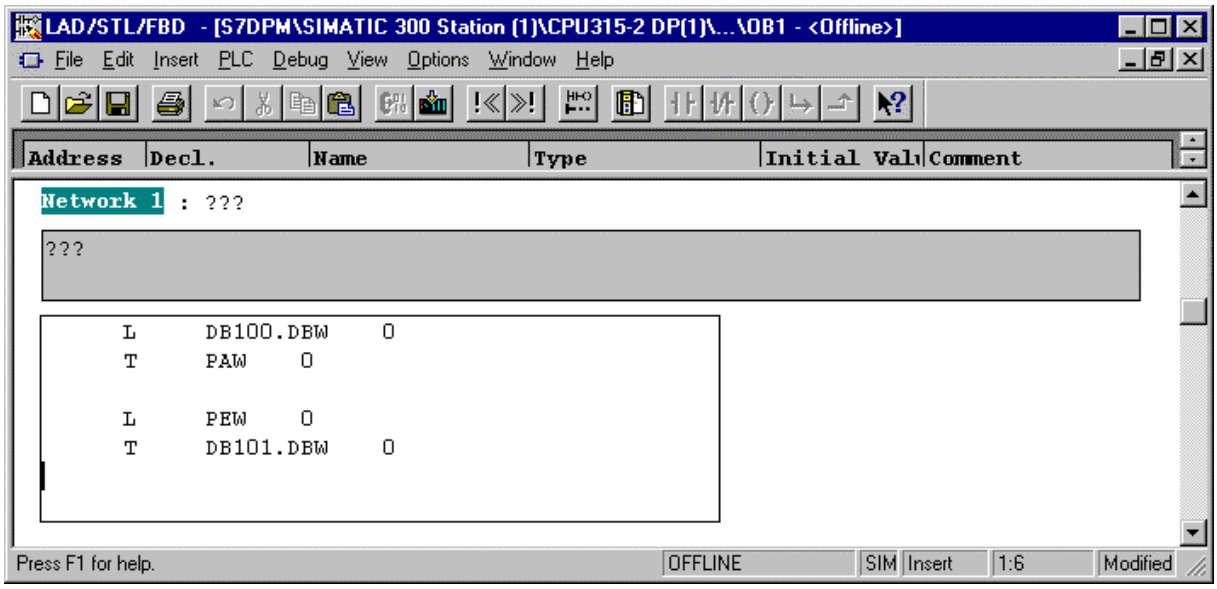
Insert from the Library StdLib30 all OB necessary for your project, e.g. OB86.

Open OB1 and add the following program instructions.



Select **File - Save** and **File - Exit**.

Select the menu **PLC - Download**.

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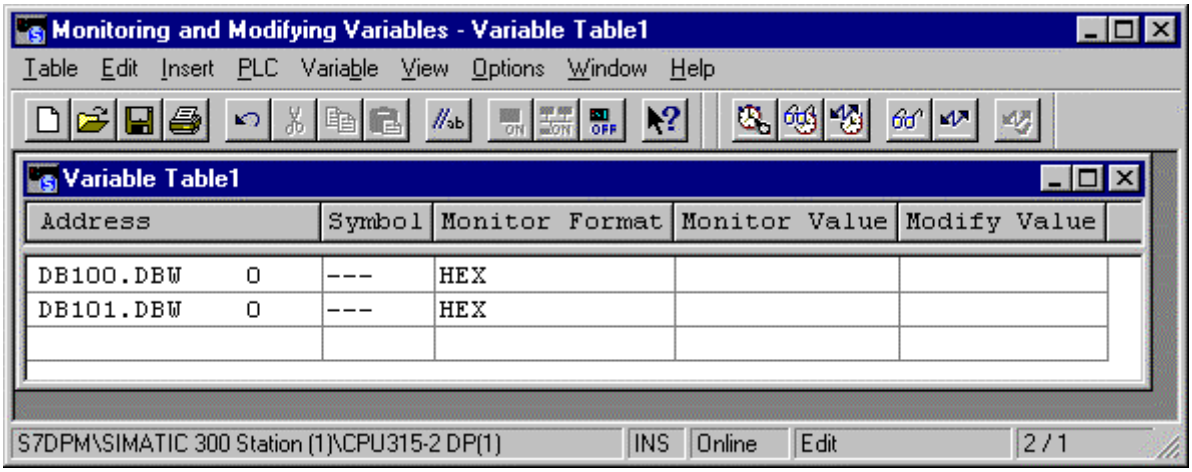
3.5 Monitor/Modify Variables

Select the menu **View - Online**. Then select CPU 315-2DP. Then select the menu **PLC - Monitor/Modify Variables**.



Add the variables.

Go online and monitor/modify values.

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